

Pleistocene shell deposits along the lower Swan River and has also been collected by Mr. W. H. Butler as a fossil at the Hill River north of Perth, where it is associated with the pelecypod *Katelsia scalarina* Lamarck. It is well known from the mid recent shell beds of south-eastern South Australia, where it is in great abundance. This species has commonly been used as a marker fossil indicating a warm water fauna (Howchin, *Rept. Aust. Assoc. Adv. Sci.*, vol. 16, 1923; Reath, *Proc. Roy. Soc. W.A.*, vol. 11, 1925; Sprigg, *Geol. Surv. S.A.*, Bull. 29, 1952, and others). This view seems to have been based on inaccurate and insufficient information of the living distribution of the species. The earliest of these workers erroneously believed that living *A. trapezia* occurs around the northern coast from North-Western Australia around to Sydney. This is probably due to their failure to distinguish between *A. trapezia* and *A. thackwayi*, the latter species being common alive on the mud flats of the north-western Australian coast. Because of the apparent extinction of *A. trapezia* in southern Australia they therefore assumed that its presence in southern Australian fossil beds indicated warmer water conditions than those at present.

Prior to the discovery of living *A. trapezia* in Oyster Harbour, the known living range of this species was from southern Queensland to Port Phillip Bay, Victoria. Within this region it inhabits sheltered mud flats of estuaries and inlets. It should be pointed out that the minimum water temperatures of the sea in the Port Phillip Bay region are below 10° C., i.e. lower than those where *A. trapezia* is now extinct in South Australia.

This species does not have a northern distribution and, as recorded here, it is not extinct in south-western Australia. There would thus seem to be little reason for its continued use as an indicator fossil of warm water conditions.

HERPETOLOGICAL MISCELLANEA

By L. GLAUERT, W.A. Museum, Perth.

IX.—*ABLEPHARUS WOTJULUM*, A NEW SKINK FROM WEST KIMBERLEY

During visits to Wotjulum Mission, opposite Yampi Sound, West Kimberley, K. G. Buller and A. M. Douglas collected specimens of a skink new to the Museum's collection. It proves to be closely related to the Queensland, *Ablepharus ornatus* Broom, 1896, from which it differs in more numerous scales, 30-32 rows, somewhat shorter hind legs and in its coloration.

Ablepharus wotjulum sp. nov.

Form slender, the distance between the tip of the snout and the fore limb 1.34 to 1.4 in the distance between the axilla and the groin. Eye completely surrounded by granules. Rostral having short suture with the frontonasal, which is wider than long and about the size of the prefrontals. Prefrontals forming an oblique suture and separating the frontonasal from the frontal. Frontal widely kite shaped, much wider than the supraocular region, much smaller

than the fused frontoparietals; in contact with the first supraorbital and the much enlarged first supraocular. Interparietal larger than the frontonasal. Two pairs of enlarged nuchals. Three upper labials in front of the much enlarged subocular. Enlarged supraoculars almost in contact behind the frontal. Ear opening oval or subtriangular, without lobules. One pair of enlarged preanals. Tail about once and a half times as long as the head and body. Limbs pentadactyle; the adpressed limbs slightly overlap. Smooth scales in 30-32 rows, largest on the back, smallest on the sides.

Metalline or pale bronzy above. A strong black dorsolateral band, just visible from above, commencing at the nostril, passes through the eye and over the ear to the base of the tail where it becomes indistinct. It is bordered above by a fine white line and below by a stronger white band starting on the upper lip, passing under the eye and through the ear to the hind limbs. An indistinct and broken dark band separates this from the whitish under surface. On the chin the shields are dark edged; the upper and lower labials dark edged. The limbs are speckled with darker above. Tail bronzy like the back; in life it was reddish. One specimen (R11219) has widely spaced black dots along the vertebral line of the body. Another (R11800) has a few dots in this position and the third (R11799, the holotype) has none. All specimens have the dots well marked along the dorsal surface of the tail but they are absent from the regenerating portion of that of specimen R11219.

MEASUREMENTS

	R11219	R11799 (holotype)	R11800
Head and body	32	31.5	29.6
Tail	26.5*	49	50
Fore limb	8	7.8	8.2
Hind limb	12.5	12.2	12

* Regenerating.

Type material.—R11799 is designated the holotype; this and the two paratypes (R11219 and R11800) are in the collection of the Western Australian Museum.

Locality.—Wotjulum Mission, opposite Yampi Sound, West Kimberley.

THE SPREAD OF THE MEDITERRANEAN SNAIL ON ROTTNFEST ISLAND - PART II

By D. L. SERVENTY and G. M. STORR, Nedlands

The Mediterranean Snail (*Theba pisana* (Mueller) = *Helix pisana* auctt.) was introduced on Rottnest Island, in the neighbourhood of the Settlement, between 1925 and 1927. Surveys of its distribution in 1936 and 1947 showed that it was making a fairly rapid colonisation radially and had penetrated beyond the bounding salt lakes system (Serventy, W.A. Nat., 2 (2), 1949: 38, fig. 1).

Apart from this main eastern area two isolated colonies, at the main lighthouse and at Cape Vlaming, were noticed in the 1947 survey. The rapidity of the spread, as evidenced by these surveys, together with the great concentration of snails in many places in the infested zones, suggested that the colonisation of the entire island would be accomplished by an early date.

To continue the periodicity of the surveys a third mapping of the distribution of the snail on Rottnest Island was made by us during 1958. The results, combined with the previous surveys, are shown in the accompanying map.

It will be seen that the third survey reveals quite a different pattern of expansion to that which operated during the previous time interval. Instead of the even radial spread from the original infestation zone the more recent extension has been limited in the main, to its south-eastern sector. The snails have now completely occupied the area from the main jetty to Phillip Point and Bickley Point, and past Henrietta Rocks to the eastern end of Porpoise Bay. There has also been a minor spread from the previous limit at Geordie Bay along the narrow neck of land north of Lake Bagdad to the vicinity of Parrakeet Bay. The snails are now quite dense to the tip of the peninsula which juts into Lake Bagdad south-west of Padbury's Flat—this was unoccupied in 1947.

There has been no progress at all on the other fronts of this main colony. The Point Clune peninsula remains unoccupied and the old limit line between Lakes Bagdad and Serpentine is virtually unaltered. The old bridgehead across the Serpentine Lake-Government House Lake neck (cf. Serventy, 1949, fig. 2) has not altered in the slightest degree in the eleven year interval.

On the other hand the secondary colonisations recorded in 1947 have made very notable expansions. Around the main lighthouse the occupied area has spread considerably but unevenly, the extension being greatest in an easterly direction. The Cape Vlaming colony has extended eastward beyond Celia Rocks to the western end of Marjorie Bay, but on the south coast has not extended much beyond Fish Hook Bay. A new focus of infestation, of limited area, has appeared at Stark Bay.

It is very likely that the three western colonies had their origin in snails transported by motor vehicles from the parent infestation at the eastern end of the island, for each of them has radiated from a war-time installation. The wide dispersal of the snails in uninhabited sectors of the mainland coast is similarly centred on localities * that are frequently visited by motorists.

* In addition to the mainland localities listed by D.L.S. in 1949 the species has been reported at Bibra Lake and Pemberton (V. N. Serventy, *W.A. Nat.*, 2: 119); Garden I. and Shoalwater Bay (E. H. Sedgwick, *W.A. Nat.*, 2: 167) and Pt. Malcolm (V. N. Serventy, *W.A. Nat.*, 3: 37). These authors, and K. Kendrick (*W.A. Nat.*, 6: 56) have cited various dispersal agencies. D.L.S. has since observed the species at Yallingup, Cape Leeuwin, 12 mile Beach at Hopetoun (now very abundant) and the Second Beach west of Esperance. G.M.S. has observed it at Myalup Beach (15 miles north of Bunbury), Mason's Inlet (24 miles east of Hopetoun), and beaches 5 miles east and 32 miles south-east of Esperance.



Rottne I., showing the progressive colonisation of *Theba pisana*.

The table below shows the area (rounded to the nearest 5 acres) at each census of the several infestations:

	1936	1947	1958
Eastern Zone	170	570	885
Lighthouse	—	10	145
Cape Vlaming	—	15	125
Stark Bay	—	—	10
TOTAL	170	595	1165

No account has been taken in the surveys of the density of the snails, which varies locally from some score to fewer than one per square yard. Generally the most heavily infested areas are those supporting a dense growth of the introduced onion-weed (*Asphodelus fistulosus*). However the snail does occur in localities where this plant is absent, e.g., Cape Vlaming.

At present no explanation can be offered for the failure of the snails to spread westwards from the 1947 front between Lakes Bagdad and Serpentine or into the Point Clune peninsula. The first line at least, does not correspond with any known factor of soil or vegetation. The snail population along this front is very sparse and it is possible that excessive predation is hampering their occupation of the country to the west of Forbes Hill. The introduced Pheasant, *Phasianus colchicus*, and the frog, *Helioporus eyrei*, eat snails and are both very numerous in this locality. However, no such explanation will suffice for the absence of the snails on the Point Clune peninsula, which is unoccupied by pheasants and frogs.

The indigenous snail, *Bothriembryon melo* (= *bull*) has become rare or extinct in the areas invaded by *Theba*. Immediately beyond the limits of *Theba* it is still quite common, e.g., north of Lighthouse Hill and on the Point Clune peninsula. The relations between these two molluscs and the factors affecting the spread of *Theba* obviously require further study.

FROM FIELD AND STUDY

Yellow-billed Spoonbill at Bunbury.—In the *W.A. Nat.*, 6 (6): 151 E. H. Sedgwick records the Yellow-billed Spoonbill (*Platalea flavipes*) at a pool on the Brunswick-Australind Road. On August 25, 1958, I saw a Yellow-billed Spoonbill, in company with three Royal Spoonbills (*P. leucorodia*), on a swamp by the edge of the Bunbury-Australind road about a quarter of a mile on the Australind side of the Collie River and on the opposite side of the road to the Lesehenault Estuary. We had a good view of the birds from a distance of about 30 feet and watched them closely for about five minutes.

We were very interested in the record in view of the statement in Serventy and Whittell's *Birds of Western Australia* that the Yellow-billed species had not been reported south of Moora.

—A. A. BURBIDGE, Mandurah.